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Price Consciousness and Purchase Intentions for New Food Products: The Moderating Effect of Product Category Knowledge when Price Is Unknown

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This study examines the degree to which consumers' price consciousness affects their purchase intentions for a newly introduced product when the price of the product is unknown. Based on data from 186 consumers exposed to a new product offering, the results show that price consciousness indeed has a negative effect on purchase intentions, but only for consumers with a high level of product category knowledge. Although perceived risk and perceived value are significantly related to purchase intentions in general, price consciousness seems to affect only those consumers who make inferences about price based on their knowledge of the product category. Both theoretical and managerial implications of the findings are offered.

KEYWORDS price consciousness, product category knowledge, new product introductions, consumer behavior

INTRODUCTION

The price consumers pay for a food product may be perceived in different ways. For example, when price is solely seen as a cost element, it is usually judged from a negative point of view and considered purely as a sacrifice (Lichtenstein, Ridgway, & Netemeyer, 1993). On the contrary, when price operates as a quality indicator, it may be seen with more positive

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eyes and as a diagnostic piece of product information. Thus, the amount listed on the price tag may have different effects on the demand for a given product, depending on how the target consumers evaluate price information. However, how consumers evaluate and use price information when purchasing necessity products such as food largely depends on how the individuals perceive and react to price information in general. One psycho-logical phenomenon that significantly influences consumer reactions to price information is price consciousness—an individual trait that differentiates con-sumers based on the importance weight they give to price when evaluating or purchasing products. Or stated differently, *the degree to which consumers focus solely on paying low prices* (Lichtenstein et al., 1993). Understanding the price consciousness of target segments is pivotal for marketers of food, because this trait is often directly related to how the demand for a product shifts with varying price levels. Hence, consumer and marketing researchers have studied the concept of price consciousness in relation to a huge variety of phenomena, ranging from price acceptability, price thresholds, and unit prices on retail shelf labels (Ofir, 2004; Miyazaki, Sprott, & Manning, 2000), to market segmentation and brand extensions (Roos, Eastin, & Matsuguma, 2005; Hansen & Hem, 2004). In this study, we emphasize how price consciousness affects consumer purchase intentions when the price for a newly introduced food product is unknown. The notion of price consciousness as an individual, personality-related characteristic implies that it could very well be found to influence consumer purchase intentions even when clear price information does not exist. If the information consumers receive about a product enables them to make inferences about price levels, price consciousness may affect purchase intentions even though consumers have no clear picture of the actual price. For example, information about product attributes (e.g., short vs. long warranties, cognac vs. brandy), country of origin (e.g., Japanese vs. German cars), brand profile (e.g., cheap vs. luxurious), and so forth may all instigate the price consciousness of the consumer in question. However, there is reason to believe that this depends on the level of product category knowledge held by the consumer, since this kind of knowledge enables the consumer to make price inferences based on attributes other than price. For example, for a French or Belgian consumer not very familiar with fish in general and imported fish in paricular, a fresh loin of Norwegian Atlantic salmon may be perceived to be just as luxurious and expensive as a loin from the Norwegian Sterling white halibut. However, the consumer more experienced in purchasing imported fish will know that these two products are in different areas of the price scale.

Anecdotal evidence suggests that consumers often reject new food products because they *believe* the product is more expensive than it really is ("I could see from the package it was a pretty expensive mayonnaise, so I did not bother to check the price"), or they employ a reversed price-quality

judgment to make inferences about price ("This is obviously a quality cognac, so it must be pretty expensive"). As previously mentioned, such inferences cannot be made without a minimum level of knowledge on how mayonnaise packages normally look, or what constitutes a quality cognac. However, as most consumers are occupied with food-related product decisions on a daily basis, the product category knowledge for food may generally be higher across consumers than similar knowledge on other product groups, such as gas stoves or outboard engines. Hence, if the effect of price consciousness on purchase decisions is moderated by product category knowledge, this should be of primary interest to marketers of food products.

Following from this, the research question addressed in this study is important for both academics and practitioners. First, a better understanding of consumer reactions to product information and how different consumer segments reacts differently to marketing efforts contributes to the current body of knowledge on consumer behavior. Moreover, the boundary conditions explored by the inclusion of moderator effects enable a more fine-tuned picture of the relationships under study here. Second, a better understanding of how price consciousness affects purchase decisions enables producers and suppliers of food products to develop better marketing messages, more pinpointed product presentations, and a more extensive marketing toolbox in general. Thus, the primary research hypotheses addressed in this study—whether the effect of price consciousness on purchase intention when price is unknown is moderated by product category knowledge—arguably holds important implications for theory and practice.

METHOD

To test the research question outlined earlier, the data collection procedure was designed as follows: First, respondents were asked to answer a number of questions unrelated to this study, but with product category knowledge and price consciousness items placed in the midst of them. Next, participants read a story about a new fish product expected to hit the market in the near future. The story was in the layout of a magazine article and contained an objective description of frozen Pangasius filets. At the time of data collection, frozen Pangasius had just recently been introduced in the largest of the country's supermarkets and was not a product known to the majority of consumers. The sample consisted of randomly recruited individuals who were initially screened with regard to their knowledge of Pangasius, and those familiar with the product were dismissed from further participation in the study. Fourteen of the 200 consumers recruited were familiar with the product, leaving a net sample of 186 respondents. After reading the cover story, respondents were asked to complete a new survey covering the remaining variables under study.

Control Variables

Basic marketing and consumer behavior literature suggest that both perceived risk and perceived value play important roles when a consumer evaluates new products (Kotler & Keller, 2009: Schiffman, Kanuk, & Hansen, 2008). First, the basic assumption related to adoption of innovations and perceived risk is that adoption rates decrease as risk levels increase (Rogers, 1995). Although the consumers' perceptions of risk may take many forms and influence consumers in different ways (Herzenstein, Posavac, & Brakus, 2007), economic, physical, social, or functional aspects are the ones con-sumers usually find risky in relation to new products (Ram & Sheth, 1989). Hence, the premise on which our study is based is that consumer positivity toward the new food product will depend on the level of risk they associate with it, and more specifically, we expect purchase intentions to be negatively affected by risk perceptions.

Second, contemporary marketing is all about delivering value to customers, and customer perceived value is widely accepted as an important feature when customers choose among products and services (Kotler & Keller, 2009; Hansen, Samuelsen, & Silseth, 2008). The value of a product is commonly referred to as the total sum of benefits received by the customer divided by the resources sacrificed to acquire them (Hansen et al., 2008). Since economic transactions such as buying food are inevitably based on some cost–benefit evaluation of varying complexity, our assumption as to the effect of perceived value is that purchase intentions will increase with increased value levels. Hence, to increase the explanatory power and validity of our model, perceived risk and perceived value are included as control variables.

Measures

The five-item scale for price consciousness was sampled from Lichtenstein et al. (1993). The three items capturing product category knowledge were adopted from Park, Mothersbaugh, and Feick (1994), whereas the three perceived value items were based on Dodds, Monroe, and Grewal (1991). Perceived risk consisted of three items adapted from Eroglu and Machleit (1990), whereas the three measures for purchasing intentions were reworded versions of the repurchase scales reported by Kumar, Hibbard, and Stern (1994) and Hansen, Sandvik, and Selnes (2003). All variables were measured with five-point, multi-item, Likert-type scales, anchored with *Totally agree* and *Totally disagree*. The scales' face validity was first assessed by ten randomly selected consumers. Next, the scales were subject to further review by several independent marketing scholars. However, no significant changes followed from these procedures. See the Appendix for a complete list of measures.

TABLE 1 Factor Structures and Reliability Measures

Item	Factor loading	Cronbach's alpha (variable)
Price consciousness 1	0.589	0.814
Price consciousness 2	0.708	
Price consciousness 3	0.508	
Price consciousness 4	0.769	
Price consciousness 5	0.858	
Perceived risk 2	0.624	0.663
Perceived risk 3	0.800	
Perceived value 1	0.710	0.699
Perceived value 2	0.757	
Perceived value 3	0.525	
Purchase intention 1	0.814	0.810
Purchase intention 2	0.837	
Purchase intention 3	0.654	
Product category knowledge 1	0.873	0.823
Product category knowledge 2	0.599	
Product category knowledge 3	0.878	

Data Analysis

Data analysis departed with a convergent validity test. A confirmatory factor analysis was employed, and the analysis revealed single factor structures and satisfactory factor loadings for all variables except perceived risk. Here, one item (perceived risk 1) had a factor loading below the cutoff value of 0.3 and was removed from further analysis. After this removal, the two remaining items received factor scores of 0.624 and 0.800. For price consciousness, factor scores ranged from 0.508 to 0.858, and the loadings for perceived value varied between 0.525 and 0.757. Factor scores for purchase intentions were in the range between 0.654 and 0.837, and the product category knowledge items received values ranging from 0.599 and 0.878 (see Table 1).

To empirically test the reliability of the scales, they were all subjected to a Cronbach's alpha calculation. As can be seen from Table 1, the alpha value was satisfactory for all scales, with test scores ranging from 0.663 to 0.823.

The direct effects of price consciousness, perceived risk, and perceived value on purchase intentions were tested within a multiple regression on the following form:

$$PI = \alpha + \beta_1 PC + \beta_2 PR + \beta_3 PV + \varepsilon \quad (1)$$

where PI is purchase intentions, PC is price consciousness, PR equals perceived risk, and PV is perceived value. The parameter estimates and their corresponding p values are reported in Table 2. With a p value of 0.145,

TABLE 2 Linear Regression Results, Base Line Model (Dependent Variable: Purchase Intentions)

Variable	Beta	*p* value
Price consciousness	−0,107	0.145
Perceived risk	−0.350	0.000
Perceived value	0.590	0.000

Adj. R^2: 0.264.

the effect of price consciousness on purchase intentions is not significant. The beta coefficients for both perceived risk and perceived value are in the predicted direction, and their corresponding *p* values are 0.000 for both variables. The regression model explains 26.4% of the variation in the dependent variable.

To test the moderating effect of product category knowledge, we employed a standard two-group procedure (Arnold, 1982; Kohli, 1989). First, based on their product category knowledge scores, respondents were divided into two groups based on a median-split. The respondents in the low group had knowledge scores ranging from 1 to 2.33, whereas the scores for the high knowledge consumers varied from 2.67 to 5. The regression model in equation (1) was then run again in the two product category knowledge sub-groups separately ($n = 93$ in both groups). The residual sums of squares from all three aforementioned regressions (total sample plus two sub-groups) were included in a Chow test to confirm any significant difference between the coefficients in the two groups (Chow, 1960). This procedure tests whether the parameter estimates in two or more linear regression models are equal, by calculating a test statistic that follows an F-distribution with k and $N_{TS} - 2k$ degrees of freedom (N_{TS} is the total number of observations). The results of the two sub-group regression models are reported in Table 3, along with the test statistic for the Chow test. As can be seen from this table, the Chow test's F-value of 1.91 is not significant.

TABLE 3 Linear Regression Results, Two Group Analysis (Dependent Variable: Purchase Intentions)

Variable	Group	Beta	*p* value	Chow test
Price consciousness	Low	0.006	0.958	
	High	−0.191	0.041	
Perceived risk	Low	−0.247	0.017	
	High	−0.390	0.000	
Perceived value	Low	0.660	0.000	
	High	0.466	0.003	
				F = 1.99 (n.s.)

Adj. R^2: Low = 0.248; High = 0.235.

Moreover, the table shows that the effect of price consciousness is not significant for the low knowledge group—a result in line with the findings from the overall sample (see Table 2). However, for consumers with high levels of product category knowledge, the effect is negative and significant. Hence, the fact that the analysis returns one significant and one non-significant beta coefficient lends support to the hypothesized moderating effect of product category knowledge. The regression model for the low product category knowledge group explains 24.8% of the variation in the dependent variable, and the regression in the high knowledge group explains 23.5%.

DISCUSSION AND IMPLICATIONS

The major findings of the study reported here are that when the price for a newly introduced food product is unknown to the consumers, (1) price consciousness has an effect on purchase intentions, but that (2) this effect occurs only among consumers with high levels of product category knowledge. In addition, both perceived risk and perceived value are significant drivers of purchase intentions. These results hold some important implications for both marketing theory and practice. First, the major drivers of purchase intentions in the tested model is perceived risk and value, and as expected, perceptions of low risk and high value will increase purchase intentions. However, for high knowledge consumers, price consciousness will have a negative effect on purchase intentions. Recall that this personality trait was measured on a general basis, and it is not linked to the product evaluated in the study. Hence, when price for a new product is unknown, high knowledge consumers will have lower purchase intentions if their general price consciousness is high, and vice versa. Related to theory, this suggests that high knowledge consumers make price inferences based on the information they receive on other product attributes, and that these attributes serve as secondary sources of price-related information. Low knowledge consumers do not have the necessary memory-based information to arrive at such inference-based judgments, and thus price consciousness has no effect. Moreover, price consciousness has been described as a sensitivity to price differences, and as an internal limit to what a consumer is willing to pay (Zeithaml, 1984; Lichtenstein, Bloch, & Black, 1988). High knowledge consumers may use their memory-based category information to make inferences about price, (incorrectly) decide that the new product is too expensive, and thus refrain from purchasing it or going the extra mile to acquire correct price information. On the contrary, low knowledge consumers are, to a lesser extent, able to make such memory-based inferences and decisions, and since they have no or limited knowledge on whether their internal price limit has been crossed, price consciousness does not have an effect.

Second, even when the message content marketers send to their target segments does not contain information on specific attributes (i.e., price),

consumers often make inferences about the product based on the information they actually receive (Matta & Folkes, 2005). And as with a number of other inferences we make as consumers, inferences made about price are often incorrect. Hence, a practical implication would be to target high and low knowledge consumers in different ways; high knowledge consumers to a larger extent should be addressed with information that accounts for the effect of price consciousness. Stated differently, messages tailored to high knowledge sub-segments would benefit from containing information that impedes inference making and offers clear representations of the product's price level. On the contrary, messages aimed at low knowledge consumers do not have to focus on price in a similar manner, as the effect of price consciousness on purchase intentions is non-existent in this customer group.

Following from this, another implication for practitioners applies to segmentation strategies. Although most firms have reasonably good pictures of their customers in terms of demographic and geographic aspects (Schiffman et al., 2008), a similar picture is more infrequently held when it comes to psychographics. Segmentation based on trait-like psychological differences is more demanding, but our results suggest that to increase consumer purchase intentions for new food products, marketers should strive to acquire psychological profiles of the target segments, thereby making more fine-tuned and tailored marketing messages possible.

In the study reported here, the central point of attention was to scrutinize the relationship between price consciousness and purchase intentions for new food products when price is unknown, and whether product category knowledge moderates this relationship. Although the results yield general support for the assumed relationships, future research would benefit from testing the effects in a more comprehensive model of new product adoption. Only two control variables are included in this study, and only one food product was used to test the suggested effects. Future research should strive to extend the model in which price consciousness is included and re-examine the effects found here within the boundaries of a larger nomological net. By so doing, even more detailed knowledge on how price consciousness works, and what moderates its effects, are likely to be established.

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APPENDIX

Measurement Scales

Price consciousness

1. I am not willing to go an extra effort to find lower prices (r)*.
2. I will grocery shop at more than one store to take advantage of low prices.
3. The money saved by finding low process is usually not worth the time and effort (r).
4. I would never shop at more than one shop to find low prices (r).
5. The time it takes to find low prices is usually not worth the effort (r).

Perceived value

1. It seems as though buying Pangasius gives value for the money.
2. When buying frozen fish, Pangasius seem to be a good buy.
3. Pangasius is a fairly cheap alternative compared to other, similar products.

Perceived risk

1. I do not have much experience in purchasing products like Pangasius.
2. The decision to purchase Pangasius involves a fairly high risk.
3. Evaluating such new fish products is not very easy.

Purchase intentions

1. If I were to buy fish for dinner today, I would probably buy Pangasius.
2. I will probably try Pangasius in the near future.
3. Trying Pangasius is not an option for me (r).

Product category knowledge

1. Compared to my friends, I know quite a lot about fish and fish products.
2. Compared to an expert, I know quite a lot about fish and fish products.
3. In general, I have a quite good knowledge of fish and fish products.

*(r) denotes reversed items.